

REMARKS

Claims 1-35 are present in this application. Claim 35 has been withdrawn from consideration in the present examination for being directed to a non-elected invention so that claims 1-34 were examined in the present Office Action. Clarifying amendments have been made to claims 1, 27, and 33. Reconsideration and allowance for all claims 1-34 of the present application as amended are earnestly solicited in view of the following remarks.

Restriction has been required in the present application between a group I invention directed to a sealing device including at least claims 1-34 and a group II invention directed to an ion beam measuring device including at least claim 35. The group I invention including at least claims 1-34 have been elected for examination in the present application. Upon allowance of the claims in the present application, presently withdrawn claim 35 will be cancelled for placing the present application in condition for allowance. Applicant reserves the right to file a divisional application on the non-elected group II invention including at least claim 35.

Claims 1-34 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,666,276 to Hubler. This rejection is respectfully traversed.

Claim 1 recites a sealing device for providing a seal in vacuum applications about a shaft that extends between first and second pressure differential zones. The sealing device comprises a shaft seal and a seal mount for maintaining a vacuum seal for preventing contamination of a vacuum process chamber to which the shaft extends. The shaft is moveable in at least one of a sliding and rotational movement relative to the seal mount in two or more degrees of freedom. By allowing the shaft to be moved in two or more degrees of freedom, objects and devices may be manipulated by the shaft within the process chamber. The flexible seal mount permits such relatively large ranges of motion of the shaft while maintaining a vacuum seal which prevents contamination of the vacuum environment. Similar to the sealing device recited in claim 1, claims 27 and 33 respectively recite a floating shaft seal for providing a vacuum seal and a device for maintaining a seal. Both of these seals are directed to maintaining a vacuum seal for preventing contamination of the vacuum process chamber while allowing the shaft to move in

two or more degrees of freedom for manipulating objects and devices within the process chamber.


Hubler is relied on to disclose a sealing device for a rotary shaft which relates to a moderate-leakage sealing device. As shown in Fig. 2, the device includes straps 22, rings 12 and 13, a sleeve 6a, a socket 3a, a lining 5a, and a wall 2a. A layer 5 of material having a low frictional coefficient lines or coats the inner surface of the socket 3 for the shaft 1. The socket 3 restrains against excessive movement of the shaft in the axial direction. A clearance between the shaft 1 and the socket 3 is defined to be as small as possible to minimize leakage therebetween while being sufficiently large enough to prevent binding when the shaft is started or decelerated. The fluid layer 5 is intended to prevent such binding while acting as a moderate leakage sealing device for the shaft.

In contrast, the device of Hubler does disclose a seal for a shaft that is moveable in two or more degrees of freedom as recited in claims 1, 27 and 33 of the present application. In fact, Hubler is directed to restraining against excessive movement of the shaft to prevent binding with the socket. As a result, Hubler does not allow a shaft with movement having two or more degrees of freedom for manipulating objects and devices within a process chamber while maintaining a vacuum seal as claimed in the present application. Furthermore, Hubler is directed to fluid type sealing devices. Such fluid type sealing devices are insufficient for maintaining a suitable vacuum seal and thereby allowing air to contaminate the vacuum environment. The moderate or limited leakage realized in Hubler's device is insufficient for maintaining a vacuum seal of a shaft having two or more degrees of movement in a process chamber. Accordingly, it is respectfully submitted that Hubler does not anticipate claims 1-34 of the present application and it is respectfully requested that this rejection be reconsidered and withdrawn.

For all of the above stated reasons, it is respectfully submitted that all of the outstanding rejections have been overcome. Therefore, it is requested that claims 1-34 of the present application be passed to issue for at least the above stated reasons.

If any issues remain unresolved, the Examiner is requested to telephone the undersigned attorney. Please charge any additional fees or credit any overpayments to deposit account No. 50-0896.

Respectfully submitted,
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